



# FOREST HEALTH PROTECTION

## Pacific Southwest Region

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### **Evaluation of the Picket Pen Salvage Project Pacific Ranger District, Eldorado National Forest**

On August 8, 2006 I accompanied John Quidachay (Forester) to evaluate current bark beetle activity, particularly bark beetles attacking red fir on the Picket Pen Salvage Project located in the Crystal Basin Recreation Area.

#### **Background**

Forest Health Protection Aerial Detection Surveys conducted in 2004 and 2005 of the Eldorado National Forest show a marked increase of mortality in red fir in mixed conifer stands at high elevation. Increases in pine mortality caused by other primary bark beetles were also noted, but were not significantly high as fir engraver activity in the red fir. This surge of beetle activity was considered to be associated with severe drought conditions in previous years, which contributed to host tree stress and decreased resistance to insect attack.

The Picket Pen Sale was initiated in 2005 to salvage dead and recently attacked trees, thereby mitigating mortality and improving overall forest health in project areas. Project areas are located around 6100 feet, composed predominantly of red fir, mixed with Lodgepole and Jeffrey pines, with an occasional mountain hemlock. Red fir trees in the area are of large diameter, very mature and decadent. Regeneration is sparse in the understory, and snags – mostly red fir, most snapped about mid-bole height – are prevalent. About 90% of the fir in the project is visibly infected with Dwarf mistletoe (*Arceuthobium abietinum*), with an average Hawksworth rating of 3 (moderately infected). Project areas were intermittently salvaged in the past, but have not been treated since. High density of live trees still remained, thereby still limiting resources between residual trees and continuous infection of dwarf mistletoe to occur in the canopy. Stands were not released and resource competition coupled with dwarf mistletoe infection and drought greatly reduced stand potential.

#### **Current Beetle Activity and Discussion**

In examination of several stands in the Picket Pen project that were in the process of being treated, bark beetle activity was active given the time of year but appeared minimal. John and I examined currently attacked trees, most often finding fir engraver (*Scolytus ventralis* Le Conte) and roundheaded fir borer (*Tetropium abietis* Fall). Needle discoloration, boring dust, and pitch streaming were quick reference signs of insect attack. Similar traits that were observed in

attacked trees were thin crowns, average diameters-at-breast height between 10-16 inches, and moderate mistletoe infection.

While mortality is above what is considered normal levels for these areas and has been continuous at this level for the past couple of years, beetles appear to be selecting trees as they would in endemic years: poor condition and lowered resistance. Bark beetle activity would not be classified at outbreak status at this time. Fir engraver is often recorded to reach outbreak during or after periods of drought (Furniss and Carolin, 1977), but other factors such as defoliation, pathogens, or competition also make trees susceptible to attack (Ferrell 1986). Justifiably during the earlier drought years, beetle-caused tree mortality was significantly higher as severely stressed host trees were abundant, consequently causing beetle populations to increase. Reduced host food susceptibility and availability may keep beetle populations at low levels for the present; however, other stand conditions exist that also strongly influence beetle activity and must be taken into account if project objectives were to change.

Objectives for the Picket Pen Salvage Project are being effectively met while reducing further bark beetle incidence. Measures that improve tree health and vigor are the most practical in reducing most bark beetle activity. It was a pleasure to meet with John and hope this report is helpful and supportive in their management efforts. If there are any questions or comments, please do not hesitate to contact me.

/s/ *Beverly M. Bulaon*

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South Sierra Shared Service Area



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**Reference cited**

Ferrell, G. T. *Fir engraver*. Forest Insect and Disease Leaflet 13. Pacific and Southwest Forest and Range Experiment Station, USDA Forest Service. 8 pgs.

Furniss, R.L and V.M. Carolin 1977. *Western Forest Insects*. Pacific Northwest Forest and Range Experiment Station, USDA Forest Service. Miscellaneous Publication No. 1339.